

POZNYAKOV, I. N.

SO: JPRS 59279
14 June 73

GROWTH OF EPITAXIAL SILICON FILMS WITH THE APPLICATION OF HYDROGEN OF HIGH PURITY AND THE STUDY OF THEIR PROPERTIES

[Article by V. P. Pasukhovich, A. S. Lyubovskiy, V. N. Mikhailov, A. N. Poznyakov, Ye. I. Morozkin, Novosibirsk, Pribluzhnyy Bogin i Struktura Vostok, 1968, No. 1, 1-3, 1968, pp. 51-61.]

The most prospective and controllable method of growing epitaxial films of silicon is the reduction of its tetrachloride in the region of the heated surface of the monocrystalline substrate of silicon in a hydrogen current. Although this process is the subject of many papers [1-3], the effect of oxygen on the electrophysical properties and the growth kinetics of epitaxial silicon films have been studied inadequately [5].

We have performed comparative experiments to obtain the epitaxial films of high purity (total admixture content 1-10⁻⁷ percent by volume) containing a controllable admixture of water vapor in the hydrogen. In Figure 2 we have the schematic of the experimental deposition device together with the system for directed introduction of water vapor into the hydrogen.

The epitaxial films were obtained on substrates of various types which were placed on the silicon base heated by high frequency currents. The process was realized in a vertical quartz reactor, and the quantity of hydrogen and chlorine was regulated within the desired limits. The optimal growth temperature was 1200-1250°C. The silicon chloride had a total impurity content of no more than 10⁻⁶ percent.

In order to investigate the effect of the oxygen on the growth process, a special saturation system was used (Figure 2).

The hydrogen saturated with water vapor came into the reaction area after the temperature of the substrate reached 1250°C. The substrates were subjected to the effect of the wet hydrogen in practice together with the beginning of deposition. This permitted the pickling effect of the water vapor on the substrate to be avoided [5] and unique data to be obtained on the effect of the water vapor and the oxygen (at a growth temperature of 1250°C, dissociation of the water with the formation of free O₂ takes place). The deposition was carried out with a flow rate of approximately 4 liter/min with a mole fraction of SiCl₄ in the H₂ equal to 0.003.

USSR

AVRAMENKO, V. I., POZNYAKOV, V. V.

"Approximate Calculation of n-Dimensional Normal Distribution Functions by Means of Edgeworth Series"

Kibernet. i Vychisl. Tekhn. Resp. Mezhved. Sb. [Cybernetics and Computer Technology. Republic Interdepartmental Collection], 1972, No 18, pp 31-36 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V31, by the authors).

Translation: A method is studied for constructing approximate estimates for multidimensional normal distribution functions. Approximate analytic expressions are produced by means of expansion of conditional distribution functions into Edgeworth series, for calculation of the distribution functions of the two and three-dimensional random normal vectors. Numerical calculations are performed using the formulas suggested, and the results are compared with precise tabular values. The approximate expressions produced are recommended for engineering calculations.

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USSR

UDC 519.24

POZNYAKOV, V. V.

"Approximate Determination of Two-Dimensional Normal Distribution"

Mat. Metody v Kibernet. Tekhnike. Vyp. 6 [Mathematical Methods In Cybernetic Technology, No 6 -- Collection of Works], Kiev, 1970, pp 3-15, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V132).

NO ABSTRACT.

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USSR

UDC 669.243

POZNYAKOV, V. YA., and CHETVERTKOV, K. S.

"Removal of Lead, Zinc, and Arsenic During the Production of Nickel from Sulfide Ores"

Tsvetnye Metally, No 4, Apr 71, pp 18-23

Abstract: Copper-nickel sulfide ores used for the production of pure nickel contain small amounts of lead, zinc, and arsenic which reduce the quality of the nickel obtained if not removed. Lead in the ore ranges from 0.001 to 0.007%, averaging 0.002%. In the electrofilter dust there is 2-3%, in the matte about 0.013%, and in the slag about 0.0003%. It is present in the ore as a sulfide and as an oxide and sulfate in the dust. It was shown that the high rate of sublimation of lead in the converter helps to concentrate it in the fine dust of the electrofilter, where the amount of lead reaches 3%. Therefore, it is necessary to introduce a separate cycle to remove the lead from the dust.

Approximately 85% of the zinc impurities enter with the ore feed as both the oxide and the sulfide. Ore electrosmelting and a two-stage liquid processing of the converter slag removes 99% of the zinc entering and with proper control of reagents makes it possible to avoid costly purification of
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USSR

POZNYAKOV, V. YA., and CHETVERTKOV, M. S., Tsvetnye Metally, No 4, Apr 71,
pp 18-23

the catholyte.

The arsenic, for the most part, also ends up in the converter dust
and can be removed along with the lead.

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Immunology

USSR

UDC 576.858.7(07).3-036.22+616-022.14

POZODINA, V. V., KORESHKOVA, G. V., BOCHKOVA, N. G., SENQUTA, N. B., and
MEDVEDEVA, G. S., Institute of Poliomyelitis and Viral Encephalitides,
Academy of Medical Sciences USSR

"Mixed Arbovirus Infections (the Diagnostic, Genetic, and Vaccine Aspects of
the Problem"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 8, Aug 73, pp 89-90

Abstract: The ecology of arboviruses permits a combined source of infection. Simultaneous infection with Japanese encephalitis and other group A and B arboviruses were observed. Features in the growth of experimental mixed infections were studied for group A (Sindbis + Gets, group B (West Nile + Japanese encephalitis), and group A + B (West Nile + Sindbis). Several different immunological phenotypes were observed and characterized. The interaction of the individual virus type in a mixture may be related to its phenotype. Differences were observed in the experimental A + B mixtures.

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USSR

UDC 577.3

POZOLOTIN, A. A.,

"The Effect of a Magnetic Field on Radiation-Induced Chromosome Aberrations in Plants"

Vliyaniye Magnitnykh Poley na Biologicheskiye Ob'yekty, pp 89-97

Abstract: During an investigation of the effect of pulsed and constant magnetic fields on radiation-induced chromosome aberrations in the meristematic tissue of the pea plant, a change was noted in the yield of aberrations caused by gamma irradiation of the root tips. The effect manifests itself only in the stage at the end of moistening irradiated seeds and depends on the dose of preliminary radiation. The effect is not uniform over the period of the first mitosis, from which it follows that the magnetic field affects the rate at which initial potential chromosome damage is restored. The results obtained confirm the conclusions that a magnetic field is a weak biological stimulus.

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Pharmacology and Toxicology

USSR

UDC: 615.787.017.8-053-092+612.922.3.087-
053+591.18-135:577.87:577.17

PROZOROVSKIY, V. B., SEPPEN, M. A., and KHIROMOVA, O. N., Central Scientific Research Laboratory, Pediatric Medical Institute, Leningrad

"Age Differences in the Sensitivity of Rabbit Brains to Choline-Potentiating Preparations"

Elektrofiziologicheskiye Issledovaniya Tsentral'noy Nernvoy Systemy Pozvonochnykh, (Electrophysiological Studies of the Central Nervous System of Vertebrates), Leningrad, "Nauka, 1970, pp 109-113

Abstract: The object of the investigations was to determine age differences in the sensitivity of rabbit brains to armin, galanthamine, proserine, oxazyl, and eserine, all choline-potentiating preparations. This determination is important for establishing rational doses of preparations and regimes of functional and biochemical systems in ontogeny. Adult rabbits and young rabbits 1.5 months of age were used in the experiments. Individual doses of the preparations were administered to the experimental animals, and the duration of the activating reaction was determined by electroencephalography with the use of steel electrodes inserted into the cranium of the animals. Thirty minutes prior to the beginning of the experiments, the animals were given chloralose and metacin respectively
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USSR

PROZOROVSKIY, V. B., et al, Elektrofiziologicheskiye Issledovaniya Tsentral'noy Nervnoy Systemy Pozvonochnykh, (Electrophysiological Studies of the Central Nervous System of Vertebrates), Leningrad, "Nauka", 1970, pp 109-113

in doses of 20 and 2.5 mg/kg body weight, the former to develop a state of drowsiness, and the second -- to prevent the excitation of the peripheral M-cholinergic reactive systems. At the same time anticholinesterase activity of the preparations was determined in vitro with the use of the Hestrin method. The investigations established that the brain sensitivity of the young rabbits is by 1.2-1.7 times lower with respect to armin, galanthamine, proserine, and eserine than that of adult animals, and that doses of these preparations required to induce an activity reaction respectively in young rabbits and adult animals are as follows (in mg/kg): 0.089 ± 0.002 and 0.052 ± 0.007 for armin; 1.100 ± 0.0107 and 0.900 ± 0.039 for galanthamine; 0.190 ± 0.020 and 0.130 ± 0.016 for proserine; 0.079 ± 0.004 and 0.054 ± 0.022 for eserine. The exact dosage of oxazyl could not be determined because a dose of 0.2 mg/kg of the preparation killed the young animals. No correlation between the anticholinesterase activity of the preparations and their effect on the electroencephalogram was established.

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UDC 8.74

USSR

MASHKINA, R. V., PRACHENKO, V. D., SERGIYENKO, I. V., SEMIK, V. P., TUKALEVSKAYA, N. I.

"Automated Information Servicing and Data Processing Systems for a Library of Algorithms and Programs. Part I"

Avtomatizirovannaya sistema informatsionnogo obsluzhivaniya i obrabotki dannykh fonda algoritmov i programm. Ch. I (cf. English above), Kiev, Cybernetics Institute of the Ukrainian SSR Academy of Sciences, 1972, 204 pp, ill., 60 k. (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V472 K)

Translation: An automated information servicing and data processing system for an algorithm and program library on a computer, its program and information servicing and also the operating procedures for this system are described. In the first chapter the basic problems of developing the system, the steps in its creation and its operating conditions are discussed, and one method of combining the principles of universality and specialization providing the basis for the construction of the system is described. In the second chapter there is a description of the shape of the input and output documents of the system and the structure of the user-system communication language. The third chapter is devoted to a discussion of means of describing the system: the language of the data flow diagrams, the block-system language and the operating address

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USSR

MASHKINA, R. V., et al., Avtomatizirovannaya sistema informatsionnogo obsluzhivaniya i obrabotki dannykh fonda algoritmov i programm. Ch. I, Kiev, Cybernetics Institute of the Ukrainian SSR Academy of Sciences, 1972, 204 pp, ill., 60 k.

language for description of the system procedures. In the fourth chapter the program library for the system and the structure of its information files are described by the means discussed in the third chapter. The fifth chapter contains the problems of introduction and maintenance of the system.

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USSR

UDC 8.74

MASHKINA, R. V., PRACHENKO, V. D., SERGIYENKO, I. V., SEMIK, V. P., TUKALEVSKAYA, N. I.

"Automated Information Servicing and Data Processing Systems for a Library of Algorithms and Programs. Part II"

Avtomatizirovannaya sistema informatsionnogo obsluzhivaniya i obrabotki dannykh fonda algoritmov i programm. Ch II (cf. English above), Kiev, Cybernetics Institute of the Ukrainian SSR Academy of Sciences, 1972, 208 pp, ill., 60 k. (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V473 K)

Translation: The allocation of the system software on the information carriers and the software for the Dnepr-2 computer are presented.

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USSR

MORKVENAS, R., PRAGARAUSKAS, G.

"Games Version of the Problem of the Optimal Halt"

Lit. Mat. Sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 3, pp 107-112 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow, 1973, Abstract No 3 V88 by the authors).

Translation: Suppose in the probability space (Ω, \mathcal{F}, P) we fix the set of non-decreasing σ -subalgebras $\{\mathcal{F}_n, n = 0, 1, 2, \dots\}$ of σ -algebra \mathcal{F} and \mathcal{F}_n measured as a function of x_n , ϕ_n are defined. The process x_n can be stopped by the first player at moments n when $\phi_n > 0$, by the second player when $\phi_n < 0$. If the game is stopped at moment n , the second player receives x_n from the first player. Suppose $E(\sup |x_n|) < \infty$. The "truncated" process is studied. The value of W_n^N and optimal strategies σ_0^N, τ_0^N of the "truncated" process are defined. It is proven that where $N \rightarrow \infty$, $W_n^N \rightarrow W_n$, where W_n is the value of the game of the "nontruncated" process.

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USSR

MORKVENAS, R.; PRAGARAUSKAS, H. (Vilnius State University; Institute of Physics and Mathematics, Lithuanian Academy of Sciences)

"Variation in the Problem of Optimal Stopping in a Game"

Vilnius, Litovskiy Matematicheskii Sbornik; Vol XII, No. 3, 1972; pp 107-11

Abstract: Let (Ω, \mathcal{F}, P) be a probability space. Let $\{\mathcal{F}_n, n=0,1,\dots\}$ be a non-decreasing family of σ -subalgebras of \mathcal{F} and x_n, φ_n be \mathcal{F}_n -measurable functions. The process x_n may be stopped by the first player at a moment n if $\varphi_n > 0$ and by the second one if $\varphi_n < 0$. The second player gets from the first one the payoff x_n if the process is stopped at the moment n .

Suppose that $E(\sup |x_n|) < \infty$. Then we prove that there exists the value of the "bounded" process W_n , the optimal "bounded" strategies σ_n^N, τ_n^N and it is almost certain that $\lim_{N \rightarrow \infty} W_n^N = W_n$ where W_n is the value of the "unbounded" process.

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USSR

UDC 681.142.33

PRAGER, I. I.

"Analog Computers"

Moscow, Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinostroyeniye"
Publishing House, 1971, 264 pp

Abstract: This textbook was written to correspond to the approved program for the "analog computers" course for technical schools. The book discusses the basic types of modern computers, describes their operating principles, gives computational techniques and examples are presented. The operating principle of existing types of analog computers built on the basis of these computing devices is presented.

Problems of programming for analog computers are discussed. The basic methods for solving differential, algebraic, and transcendental equations by applying analog computers of the structural type and grid model are presented. The construction and application of digital-analog computers are discussed in the conclusion.

The book is intended as a textbook for students of technical schools. It will be useful to a large group of engineers and technicians concerned
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USSR

PRAGER, I. L., Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinos-troyeniye" Publishing House, 1971, 264 pp

with the design and use of analog computers and using analog computers for solving scientific and technical problems. The book contains 6 tables, 141 illustrations, and a bibliography of 4 references. The table of contents follows:

Chapter I. General Information on Computers and Their Application

1. The Concept of Modeling
2. Analog and Digital Computers

Chapter II. Linear Passive Circuits of Analog Computers

1. Addition of Voltages and Currents in Circuits With Passive Elements
2. Operator Method of Solving Differential Equations
3. Concept of the Transfer Function and Characteristics of Linear Systems
4. Integrating RC Circuit
5. Differentiating RC Circuit
6. Methods for Compensating for the Basic Error in the Integration and Differentiation of the RC Circuit

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USSR

PRAGER, I. L., Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinos-troyeniye" Publishing House, 1971, 264 pp

Chapter III. Resolving Amplifier

1. Characteristics of an Amplifier With Negative Parallel Voltage Feedback
2. Basic Applications of Resolving Amplifiers
3. Errors Occurring in Resolving Amplifiers

Chapter IV. Operation Amplifiers

1. Requirements Imposed on Operation Amplifiers
2. Zero Drift in dc Amplifiers and Resolving Amplifiers
3. Parametric Compensation of Zero Drift in dc Amplifiers
4. Speed and Stability of Amplifiers With Negative Feedback
5. Automatic Stabilization of Zero Level in dc Amplifiers
6. Characteristics of Transistor Operational Amplifiers

Chapter V. General Principles of the Circuit Design and Programming for Analog Computers

1. General Information
2. Reduction of Equations to a Form Suitable for Solution on an Analog Computer

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USSR

PRAGER, I. L., Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinostroyeniye" Publishing House, 1971, 264 pp

3. Selection of Scale Relationships and Determination of Transfer Coefficients and Initial Conditions
4. Input of Problem in the Machine
5. Input of Impulse Functions and Variable Coefficients
6. Noise Generators
7. Basic Functions and Principles for the Construction of a Machine Control System
8. Recording the Solution
9. Solution of Ordinary Linear Differential Equations With Constant and Variable Coefficients

Chapter VI. The Construction of Nonlinear Analog Computers and the Solution of Nonlinear Differential Equations

1. Purpose and Classification of Nonlinear Function Units
2. Electromechanical Nonlinear Function Units
3. Diode Nonlinear Function Units
4. Nonlinear Function Units With Nonlinear Resistances

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USSR

PRAGER, I. L., Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinos-troyenie" Publishing House, 1971, 264 pp

5. Modeling of Typical Nonlinearities Common to Automatic Control Systems
6. Classification of Multiplication and Division Units. Indirect Action of Multiplication Units
7. Direct Action Multiplication Units
8. Units for Carrying Out Division Operations
9. Solution of Nonlinear Differential Equations
10. Modeling of Automatic Control Systems by the Strucutral Method. Constant Delay Units

Chapter VII. Solution of Algebraic Equations

1. Mathematical Bases of the Solution of Systems of Linear Algebraic Equations. Semi-Automatic Methods of Solution
2. Automatic Methods of Solving Systems of Algebraic Equations. Concept of Convergence of Methods of Solution

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USSR

PRAGER, I. L., Elektronnyye analogovyye vychislitel'nyye mashiny, "Mashinos-troyeniye" Publishing House, 1971, 264 pp

Chapter VIII. Modeling Boundary Value Problems of Mathematical Physics

1. Brief Information on Partial Differential Equations
2. Devices With Continuous Media for Solving Boundary Value Problems of Laplace and Poisson Equations
3. Electrical Circuits for Solving Partial Differential Equations

Chapter IX. Analog-Digital Computer Systems

1. General Information on Analog-Digital Computer Systems
2. Principles for Constructing Computers and a Connecting Device for Operating Analog-Digital Computer Systems

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USSR

UDC 612.014.2+616.-92.3

PRAKAPCHUK, A. Ya. (Deceased), GRYNGAUZ, M. Ya., YROMENKA, S. A.,
and KORSUN, G. F.

"The State of Histohematic Barriers in Guinea Pigs After the
Action of Ionizing Radiation on the Organism"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh
Nauk, No 1, 1971, pp 79-81

Abstract: Cutaneous permeability with respect to radioactive isotopes of phosphorus, sulfur, and arsenic was studied under certain physiological and pathological conditions of the organism. Sixty-eight guinea pigs were used. Prior to the beginning of the experiments the animals were subjected to x-ray irradiation with total doses of 500 and 900 rad. Twenty-four to 48 hours later, the isotopes (in doses of 1.8 millicurie in ointment bases) were applied to shaved skin. It was established that the skin is permeable to these isotopes, the degree of permeability depending on the activity of the isotope, the duration of skin exposure to the action of the isotope, and the type of the ointment base

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USSR

PRAKAPCHUK, A. Ya (Deceased), GRYNGAUZ, M. Ya., YROMENKA, S. A.
and KORSUN, U. F., Izvestiya Akademii Nauk BSSR, Seriya
Biologicheskikh Nauk, No 1, 1971, pp 79-81

used. The largest accumulation of isotopes in the brain, in
diminishing order of radioactivity, were found in the hypophysis,
gray matter, cerebellum, medulla oblongata, spinal cord, and
white matter.

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USSR

UDC 621.316.1.017.2.001.24:681.3

LEDYANKIN, L. P., AGEYEV, A. I., PRAKHIN, B. YA., RYZHOV, O. I.

"Calculating Electric Power Losses in High-Voltage Municipal Networks on the Ural-2 Computer"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Electric Power Supply of the Cities -- collection of works), Leningrad, Energiya Press, 1970, pp 20-23 (from RZh-Elektrotehnika i Energetika, No 4, Apr 71, Abstract No 4 Ye 285)

Translation: A method and algorithm for a program to calculate the electric power losses in the open high-voltage municipal networks on the Ural-2 digital computer are described. The electric power losses are determined by the load charts taken for groups of consumers with the same type of load. Calculations were performed by means of this program for the Ivanovo Underground Municipal Network. The calculations make it possible to offer recommendations for reduction of electric power losses. There is 1 illustration and a 2-entry bibliography.

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A majority of contracts today do not contain calculations. While in the affidavit on turning over the job the actual efficiency of research is not indicated, only the topic is an object of economic contract relationships. In our opinion, it is essential to change contract relationships between research organizations and industry. Not only the topic of research should be an object of the contract, but also a guaranteed efficiency of the enterprise from introducing the given research. We should not consider compiling and turning over a report to be the end of research work, but rather it should be the achievement of the economic benefit envisioned by the contract, the size of which is confirmed by a document.

This form of economic accountability links has been implemented in L'vov. The Institute of Economics of the Academy of Sciences Ukrainian SSR concluded contracts with a television plant. In selling its developmental work, it guarantees the enterprise not only that a set of scientific ideas and documents will be turned over, but also their high economic efficiency. The plant pays for the cost of developmental work and turns over 30 percent of the sum of the economic benefit received from its introduction to the Institute. Part of this sum goes for material incentive to the institute's associates. If the developmental work turns out to be inefficient, the Institute not only will not receive the guaranteed sum of economic benefit, but will actually refund the enterprise for all expenditures. But if the plant desires realization of developmental work or completely fails to introduce it, it is obligated to pay the cost of economic benefit, which not only raises the accountability of the parties, but also their interest in achieving a maximum economic benefit.

The determination of the value of scientific research work is also interesting. According to the statute and Model Contract, it is determined only by the estimated calculation of the performance, agreed upon with the purchaser when the contract is concluded. However, the cost of this work must be determined twice -- roughly at the moment the contract is concluded (according to an estimated calculation), and finally (a calculated sum) after it is completed. Practice requires that this method be spread to a majority of legal relationships in the performance of scientific and technical developmental work, and that it be firmly fixed in a national wide legal document.

The absence of material stimuli must also be included among the most important factors which delay development of economic contract relationships between scientific institutions and enterprises.

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ECON.

PRAKHOV

CONTRACTED PRACTICAL PROJECTS BY SCIENTIFIC INSTITUTIONS

Contract by B. Prakhov. "The Contract in the System of Economic Links Between Science and Production". Moscow, Institute for Economic Knowledge, Russian, No 2, 1972, pp 99-102.

Economic contracts are an effective tool for regulating relationships in the area of scientific research and introducing latest achievements into the national economy.

The decree of the CPSU Central Committee on USSR Council of Ministers dated 24 September 1968 and entitled "On Measures to Raise the Efficiency of the Work of Scientific Organizations and Accelerate Utilization of the Achievements of Science and Technology in the National Economy" and the decree of the USSR Council of Ministers dated 27 October 1967 entitled "On the Material Responsibility of Enterprises and Organizations for Failure to Fulfill Assignments and Obligations, the contracts indicated above. They are expressed in strengthening the principle of economic accountability in the activity of scientific research and design organizations, raising their interest in introducing innovations into production, and also increasing the responsibility of scientific and design organizations for timely, high quality work performance.

These principles have been reflected in the "Model Statute on the System of Concluding Economic Contracts and

1. SP SSSR (Collection of Government Regulations and Decrees, USSR), 1968, No 18, p 122.
2. SP SSSR, 1967, No 26, p 186.

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USSR

UDC: 621.371.332.3:551.463.7:538.3

BABAYEV, A. B., PAVLOVA, I. A., PRAKHOV, V. P.

"Diagrams of Backscattering From the Surface of the Sea"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute),
1972, vyp. 110, pp 77-79 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract
No 8G55)

Translation: The paper presents the results of experimental determination
of the diagram of backscattering for the surface of the sea. The work was
done in the Caspian Sea region. The results show the effect of the char-
acteristics of waving of the sea (widening of the main lobe of the dia-
gram with an increase in the height of the sea wave). Three illustrations.
N. S.

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Electromagnetic Wave Propagation

USSR

UDC: 621.371.332.3.551.463.7:538.3

MEDELYAYEV, A. M., PRAKHOV, V. P., GSETOVA, T. A.

"Determination of the Geometric Characteristics of the Surface of the Sea
From the Signal Reflected by the Surface"

Tr. Mosk. energ. in-ta (Works of the Moscow Power Engineering Institute),
1972, vyp. 110, pp 80-83 (from RZh-Radiotekhnika, No 8, Aug 72, Abstract
No 8G50)

Translation: The paper is an exposition of a theory of scattering of electromagnetic waves from a complex rough surface which is a superposition of two kinds of unevenness -- large waves and the ripples covering them. The theory is based on the Kirchhoff approximation in combination with perturbation theory, which makes it more accurate than the theory based on the Kirchhoff approximation alone. The latter gives satisfactory results for incidence close to normal when the effect of the fine structure of the wave can be disregarded. Bibliography of three titles. N. S.

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USSR

UDC 615.212.7+612.2147.012.1:547.822.3

SOKOLOV, D. B., SYDYKOV, B. T., PRALIYEV, K. D., KURILENKO, V. M. and
KHLIYENKO, Zh. N., Institute of Chemical Sciences Kazakh SSR Academy of
Sciences, Alma-Ata and Novokyznots Scientific Research Chemical-Pharmaceutical
Institute

"The Synthesis of Derivatives of Piperidine and Decahydroquinoline, Their
Analgesic and Psychotropic Properties. I. On the Problem of the Relationship
Between Structure and Pharmacological Activity of Some Isomeric Decahydro-
quinoline Derivatives"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 12, Dec 73, pp 7-10

Abstract: In order to study the applicability of the receptor theory, three
stereoisomers of decahydroquinoline were synthesized. All were prodionates;
one had an axial phenyl group and an axial methyl group at C₂, the second an
equatorial phenyl and an axial methyl and the third had both equatorial. The
structure of synthetic intermediates were established chemically, spectro-
scopically and by proton magnetic resonance. Analgesic activity was observed
in mice and rats at dosages of 1/5 the LD₅₀; for electrical and mechanical
stimuli in two esters and for thermal stimuli in one. The equatorial-
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SOKOLOV, D. B., et al., Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 12,
Dec 73, pp 7-10

equatorial isomer had no activity. However this compound and the equatorial-
axial isomer exhibited antireserpine activity at doses of 1/5 to 1/10 the
LD₅₀.

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USSR

UDC 616.12-073.75

YANUSHKEVICHUS, Z. I., VITENSHTeyNAS, G. A., PRANEVICHYUS, A. A., VALUZHIS, K. K.,
and YUKNELIS, L. V., Chair of Hospital Therapy, Kaunas Medical Institute

"A Method for Continuous Recording of an Amplified EKG"

Moscow, Meditsinskaya Tekhnika, No 5, Sep/Oct 70, pp 54-55

Abstract: A description is given of a method for direct recording of an amplified EKG by means of an electrocardiograph designed at the Kaunas Medical Institute. The amplification is effected by application of the feedback principle. The diagnostic advantages of an amplified EKG were established on the basis of an examination of 400 persons, including those in good health as well as those with hypertension, chronic coronary insufficiency resulting from atherosclerosis, and indistinct heart rhythm. Comparative analysis of conventional and amplified electrocardiograms showed that the new method for recording the EKG permits additional information to be obtained in the diagnosis of a number of heart diseases.

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USSR

UDC 681.3.056

PRANGISHVILI, I. V., POPOVA, G. M., USKACH, M. A., FETISOVA, S. V., MOSKOV, B. A., RUDERMAN, L. Z., KOPEYKIN, G. A., Institute of Automation and Remote Control (Technical Cybernetics)

"An Element of Homogeneous Structure"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287115, class 21, filed 11 Mar 69, published 19 Nov 70, pp 62-63

Translation: This Author's Certificate introduces an element of homogeneous structure which contains AND, OR, AND-NOT and NOT circuits, flip-flops, commutated inputs, noncommutated inputs, and inputs for horizontal and vertical tuning lines. As a distinguishing feature of the patent, the functional possibilities of the element are extended and the speed of the homogeneous structure is increased by connecting the inputs of the AND circuits for setting the flip-flops to one, to the horizontal and vertical tuning lines, while the inputs of the AND circuits for setting the flip-flops to zero are connected to the horizontal tuning lines, and through the NOT circuits to the vertical tuning lines. The outputs of the first two flip-flops are connected to the inputs of the OR circuits, which are

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PRANGISHVILI, I. V., et al., Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, 1970, No 35, Soviet Patent No 287115, class 21, filed 11 Mar 69, published 19 Nov 70, pp 62-63

also connected to the commutated inputs of the element. The outputs of these OR circuits are connected together with the noncommutated inputs of the element through an AND circuit to the input of a "mod 2 addition" circuit. Also connected to this addition circuit are the outputs of a third flip-flop. The outputs of the remaining flip-flops are connected to AND-NOT output circuits, whose inputs are also connected to the output of the "mod 2 addition" circuit and through a NOT element to one of the outputs of the structure element.

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Mathematics

PART III

10. JPRS 55352
6 MAR 1972

6/22/19

FEATURES OF CONSTRUCTING COMPETITIONS AND METHODS OF ORGANIZING COMPUTATIONAL PROCESSES IN HOMOGENEOUS MICROELECTRONIC STRUCTURES

Article by I. V. Petrovskikh, Ye. V. Babicheva, G. N. Ponomov, M. A. Ustimenko, "Vozrozhdenie yuzhnykh i po tsel'nykh izvestiyam, Moscow, 1971, Referey: Dostoyanov, Russian, Part III, 1971, pp 109-112]

One of the prospective means of constructing fourth generation digital computers is formalization of them on the basis of homogeneous structures made of large integrated circuits. The methods of organizing the computation process based on group data processing are used here as the associative principle of retrieval and calculation, schematic stimulation of the algorithm flow or conveyor data processing methods and the principles of pictorial logic. In each operator corresponds to the circuit working in homogeneous structures, while operators correspond to the circuit working in. The number of arithmetic operations in the algorithms instead of the arithmetic module, and local memory access is placed in direct proximity to the operator circuit instead of common memory. Analogously, each control operator corresponds to a local control circuit separating the arithmetic unit and the memory module.

Organization of two types of cognitive memories is possible in hierarchical structures: static and dynamic memories. From the point of view of equipment expenditures (number of cells) preference must be given to the dynamic memory. The ready-access memory of the dynamic type (with ordered and address access) is organized from the cells of the homogeneous structures located in a ring and set to execute the delay function. In a ready-access memory with ordered access, replacement of the register information is carried out after completion of the operation on the contents of the register. P_1 is the source of the control signal. The information is copied from P_1 into register P_1 , from P_1 into P_2 , and so on. As the control signal moves along the synchronous channel (the chain of cells and for the synchronous delay function), the information is copied from the preceding register into the following one. The access is nondestructive, the contents of register P_1 are copied over the synchronous channel into the last register P_n . In a ready-access memory with random access, coincidence of two control signals in time is used for writing and reading. The address in this ready-access

Automatic Control: Instruments

USSR

EDC: 681.325.65

PRANGISHVILI, I. V., POPOVA, G. M., USKACH, M. A., FETISOVA, S. V., MOSKOV, B. A., RODERMAN, L. Z., KOPEYKIN, G. A., Institute of Automation and Remote Control (Technical Cybernetics) (IPR ADU)

"An Element of Homogeneous Structure"

USSR Author's Certificate No 287115, filed 11 Mar 69, published 18 Feb 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B169 P)

Translation: Elements are known which can be used as cells of homogeneous structure in addition to other applications. A multifunctional element used as a cell of homogeneous structure has the disadvantage that only the outputs are commutated in such an element, and the logic inputs are not commutated. This limits its functional possibilities: e. g., the cell cannot be used for high-speed homogeneous structures with feed-through current lines through which signals propagate with practically no delay (bus structures). For coupling to the lines, the cells must have commutable inputs and outputs: i. e., they must receive signals from the line and transfer signals to the line. In addition, in the case of external interference the information must be periodically transferred to the cell flip-flops to correct

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PRANGISHVILI, I. V. et al., Soviet Patent No 287115

failures which may occur. In a multifunctional logic circuit in the multiple-transfer mode, all flip-flops are preset to the zero state each time, regardless of the presence of failures. This interrupts the function being realized by the structure each time, which is a considerable disadvantage of the logic circuit. The purpose of this invention is to extend the functional possibilities and increase the speed of the homogeneous structure. In the proposed element, this purpose is achieved by redistributing the control circuit between the inputs and outputs of the element without increasing the total number of components: i. e., some of the inputs and outputs are made commutable, and some are not. Only the commutable inputs and outputs are used in connecting the element to the lines. In connecting the elements to one another, the noncommutable inputs of one element are connected to the commutable inputs of the other, and vice versa. Thus between any elements of the structure (between adjacent cells or between the cells and the lines) a controllable data transmission channel is formed which may be switched on or off depending on the debugging code. The circuit for setting and resetting the flip-flops is made in such a way that when information is being transferred, the flip-flops are set immediately to a predetermined state without presetting to the zero state in order to correct failures. This procedure makes it possible to use a logic cell in high-

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USSR

PRANGISHVILI, I. V. et al., Soviet Patent No 287115

-speed bus structures, as well as to improve the interference suppression of the structure by means of multiple transfer. One illustration.

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1/2 031 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--BIRTH INJURIES TO THE WEIGHTBEARING LOCOMOTOR APPARATUS IN THE
NEWBORN -U-
AUTHOR--PRANTSKYAVICHYUS, S.V. *P*
COUNTRY OF INFO--USSR
SOURCE--ORTOPEDIYA, TRAVMATOLOGIYA I PROTEZIROVANIYE, 1970, NR 4, PP 45-50
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--INFANT, INJURY, DIAGNOSTIC METHODS, PROPHYLAXIS, OBSTETRICS,
MUSCULOSKELETAL SYSTEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0967 STEP NO--UR/9115/70/000/004/0045/0050
CIRC ACCESSION NO--AP0109124

UNCLASSIFIED

2/2 031

UNCLASSIFIED

PROCESSING DATE--09OCT70

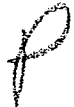
CIRC ACCESSION NO--AP0109124

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR PRESENTS OBSERVATIONS ON 239 BIRTH INJURIES TO THE WEIGHTBEARING LOCOMOTOR APPARATUS IN THE NEWBORN INFANTS. DATA ON THE INCIDENCE OF THESE INJURIES ARE PRESENTED, THE PROBLEMS OF THEIR ETIOPATHOGENESIS, DIAGNOSIS, TREATMENT AND PROPHYLAXIS ARE DISCUSSED. THE DIRECT RELATION BETWEEN THE EARLY AND CORRECT INSTITUTION OF TREATMENT ALREADY IN THE MATERNITY HOSPITAL AND ACHIEVEMENT OF BEST RESULTS IS STRESSED. MEASURES DIRECTED TOWARD IMPROVEMENT OF QUALIFICATION OF THE OBSTETRIC PERSONNEL IN REGARD TO THESE INJURIES ARE CONSIDERED TO BE OF GREAT VALUE IN THE PROPHYLAXIS OF BIRTH INJURIES TO THE WEIGHTBEARING LOCOMOTOR APPARATUS.

FACILITY: KAFEDRY OBSHCHEY KHIRURGII KAUNASSKOGO MEDITSINSKOGO INST.

USSR

UDC 621.396.669.8:621.374.34(088.8)


PRASOLOV, B. M.

"Device for Limiting the Signal Amplitude"

USSR Author's Certificate No 253166, Filed 26 Aug 68, Published 24 Feb 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D57P)

Translation: A shaping device containing two pulse shapers is included in the proposed device between the limiter and the filter in order to attenuate the noise from the higher harmonics of the input signal. One of the pulse shapers generates pulses with length equal to the period of the middle frequency of the band filter, and the second pulse shaper generates pulses with a length equal to a half-period of the middle frequency of the band filter. The shaper inputs are connected to the limiter output, and the outputs are connected to the second amplitude limiter via the summator.

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1/2 015 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ISOTOPIC COMPOSITION OF HELIUM AND ARGON FROM MICROINCLUSIONS IN
QUARTZ -U-
AUTHOR-(02)-PRASOLOV, E.M., TOLSTIKHIN, I.N. *P*
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 653-5 (MINERAL)
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--HELIUM, ARGON, QUARTZ, NONMETALLIC INCLUSION, MINERAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/1045 STEP NO--UR/0020/70/191/003/0653/0655
CIRC ACCESSION NO--AT0119912
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AT0119912

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTENT AND ISOTOPIC COMPN. OF HE AND AR WERE DETD. IN MICROINCLUSIONS EXTD. FROM 8 SAMPLES OF QUARTZ. THE DATA ARE COMPARED WITH LITERATURE ISOTOPIC COMPN. OF VARIOUS NATURAL GASES. THE VARIATIONS OF ISOTOPIC COMPN. OF HE AND PRIME40 AR-PRIME36 AR RATIO WERE SIMILAR IN MICROINCLUSIONS AND IN NATURAL GASES. THE PRIME36 AR CONTENT IN SOME SAMPLES WAS MUCH HIGHER THAN IN CONTROL EXPTS. THUS, PRIME36 AR WAS PRESENT IN ANCIENT GASES OF THE EARTH. THE HE-PRIME40 AR RATIO IN ALMOST ALL SAMPLES WAS MUCH HIGHER THAN FOR THE MOST NATURAL GASES. BUT A SMALL NO. OF DETNS. IS INSUFFICIENT TO CONSIDER THIS FACT AS A REGULAR PHENOMENON. IT WAS POSSIBLY CAUSED BY A STRONG AND DIFFERENT PERMEABILITY OF QUARTZ WITH RESPECT TO AR AND HE. THE VOLYN QUARTZ INCLUSIONS HAD HE WITH EXCEPTIONALLY HIGH VALUE OF PRIME3 HE-PRIME4 HE EQUALS 70 TIMES TO PRIME NEGATIVE7. THIS COULD BE CAUSED BY THE FACT THAT (1) QUARTZ CAPTURED HE WITH INITIALLY LOW ISOTOPIC RATIO AND PRIME3 HE ISOTOPE WAS FORMED LATER BY NUCLEAR REACTION IN THE MINERAL, (2) THE SEPN. OF ISOTOPES OCCURRED DURING CAPTURING OF HE BY QUARTZ, AND (3) THE HE WITH HIGH ISOTOPIC RATIO WAS CAPTURED BY QUARTZ. FACILITY: INST. GEOL. GEOKHRONOL. DOKEMBRIYA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC:539.183.2_621.039.5

PRASOLOV, R. S.

"Geochemical Isotopic Anomalies and the Hypothesis of Natural Nuclear Reactors"

Moscow, Atomnaya Energiya, Vol 36, No 1, Jan 74, pp 57-59

Abstract: In addition to the usual slight variations in the concentration of the isotopes of the elements in natural substances, great isotope anomalies have been observed, which can be perhaps most easily explained by various nuclear reactions in natural neutron fields related to cosmic radiation, spontaneous fission of heavy nuclei and other processes of neutron generation. - The hypothesis of natural nuclear reactors, for example, neatly explains the observed excess in Pu^{239}/U ratio revealed by geological studies. The authors believe that the natural nuclear reactor hypothesis can be useful for various practical and theoretical studies.

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Molecular Biology

USSR

UDC 576.858.71.098.396.332:576.858.71.095.6

PRASOLOVA, Z. V., LEONT'YEVA, N. A., and GALEGOV, G. A., Virology Institute
imeni D. I. Ivanovskiy, USSR Academy of Medical Sciences, Moscow

"RNA Synthesis and Reproduction of Yellow Fever Virus (Strain 17D)"
Moscow, Voprosy meditsinskoy Khimii, Vol 19, No 6, 73, pp 665-666

Translation: Studies were conducted on the synthesis of RNA by following
uridine- H^3 incorporation and accumulation of infectious virus in tissue
culture of chick embryo fibroblasts, and kidneys from pig embryos. Synthesis
of viral RNA in the presence of actinomycin D begins 6 hours following infec-
tion; it precedes the formation of infectious virus by 6 hours. Roller cul-
tures yielded virus titers of $9.0 \log BOE/ml$ [BOE expansion unknown --
Plaque-Forming Units].

The yellow fever virus continues to be of importance in infectious
pathology of man, despite the presence of effective vaccines. In the literature
at our disposal we did not find any information on RNA synthesis and a
correlation between viral RNA synthesis and the formation of the infectious
virus.

The present communication deals with this aspect of the problem, A
number of communications are available in the literature on RNA synthesis in
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viruses belonging to the Flava genus /1-3/.

Methods

The yellow fever virus¹ was introduced in the usual manner into cultures of chick embryo fibroblast monolayers (CEF) and kidneys from pig embryos (KPE). Medium 199 with 10% natural calf serum was employed. The virus was titrated by the plaque method /4/.

Synthesis of virus induced RNA was followed by the incorporation of uridine-H³ into the acid insoluble fraction of infected and uninfected cultures. Consequently, 3.5 h prior to sampling 5 µg/ml of actinomycin D was added. Uridine-H³ (5 µCi/ml; 14 µCi/mM specific activity) was added 90 min after the antibiotic addition. The incubation time with the radioactive precursor was two hours. The medium was then removed, and the cell monolayer washed twice with cold Hanks medium and thrice with cold 5% TCA, followed by a 1:1 ether ethanol mixture. To the cells fixed in this manner was added 0.3 M KOH

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and the samples were placed in a thermostat at 37° for 18 h. The neutralized incubate was placed on filter paper disks and the radioactivity was determined with a Packard liquid scintillator counter.

The relative resistance of yellow fever virus reproduction and its RNA synthesis to actinomycin D made it possible to study the temporal dynamics of uridine-H³ incorporation. In the concentration used by us, the antibiotic inhibited viral reproduction by 1.0 log BOE/ml.

Use of roller tube cultures for the yellow fever virus in KPE cells yielded infectious titers ranging from 8.96 to 9.46 log BOE/ml.

¹ The yellow fever virus (strain 17D) was kindly provided by V. P. Grachev (Institute of Poliomyelitis and Viral Encephalitis, USSR Academy of Medical Science).

Results and Discussion

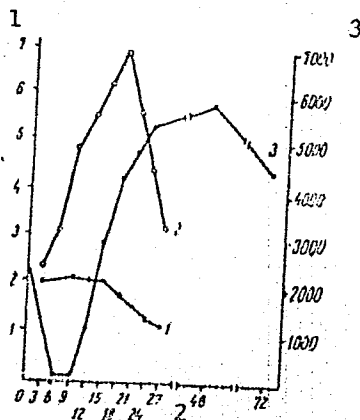
The data given in Fig. indicate that CEF cells infected with yellow fever virus show significant resistance to actinomycin D as far as RNA synthesis goes, which commences six hours after infection and increases until

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the 18th hour after which there is a progressive decrease in uridine-H³ incorporation for the next nine hours.



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PRASOLOVA, Z. V., et al., Voprosy Meditsinskoy Khimii, Vol 19, No 6, 73, pp665-666

Figure 1. RNA Synthesis and Yellow Fever Reproduction in CEF Culture. The Abscissa Indicates Time of Infection (in Hours). The Left Ordinate Indicates Virus Titer in Log BOE/ml. 1 -- Uridine-H³ Incorporation in Uninfected Cells. 2 -- Uridine-H³ Incorporation in Infected Cells. 3 -- Virus Accumulation in Culture Medium. Multiplicity of Infection: 0.2-0.4 Log BOE/ml.

Key: 1. Log BOE/ml
2. Hours
3. CPM/10⁵ cells

Reproduction of yellow fever virus begins 12 hours after infection and an apparent logarithmic growth is seen until the 24th hour. Analysis of the curves representing viral RNA synthesis and accumulation of the infectious virus reveals that RNA synthesis precedes the appearance of virus by not less than 6 hours. Maximum accumulation of the virus takes place when RNA synthesis has decreased by more than 50%. This indicates that the appearance of extracellular viral particles requires time for the synthesis of structural proteins, viral assembly and their release.

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PRASOLOVA, Z. V., et al., Voprosy Meditsinskoy Khimii, Vol 19, No 6, 73, pp 665-666

The resultant data will be useful in more detailed studies on RNA synthesis of this virus, as well as in the testing of various synthetic preparations on this model system.

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3. Trent, D. W., Swensen, C. C., and Gureshia, A. A., J. Virol., Vol 3, 385, 1969.
4. Grachev, V. P., Proceedings of the Institute of Poliomyelitis and Viral Encephalitis, USSR Academy of Medical Sciences, Vol 12, 319, 1968.

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1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--MAGNETIC AND STRUCTURAL CHARACTERISTICS OF COLD ROLLED TRANSFORMER
STEEL WITH RIBBED STRUCTURE AND LOW SPECIFIC LOSSES -U-
AUTHOR--(04)--DRUZHININ, V.V., PRASOVA, T.I., CHISTYAKOV, V.K., KURENNYKH,
L.K.
COUNTRY OF INFO--USSR
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 226-32
DATE PUBLISHED--70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--TRANSFORMER STEEL, COLD ROLLING, METAL TEXTURE, GRAIN SIZE,
CRYSTAL STRUCTURE, MAGNETIC PROPERTY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/0201 STEP NO--UR/0048/70/034/002/0226/0232
CIRC ACCESSION NO--AP0115905
UNCLASSIFIED

2/2 026

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0115905

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO PRODUCE A COLD ROLLED TRANSFORMER STEEL WITH A RIBBED TEXTURE AND SP. LOSSES ρ_{H15-50} EQUALS 0.9-1.0 W-KG THE FOLLOWING CONDITIONS MUST BE FULFILLED. THE PRESENCE OF STRONGLY PRONOUNCED CRYSTALLOGRAPHIC TEXTURE; THE DEGREE OF PERFECTION OF THE MAGNETIC TEXTURE SHOULD BE SUCH THAT γ EQUALS (1-3) TIMES 10 PRIME NEGATIVE 6; THE AV. GRAIN SIZE SHOULD BE MAINTAINED AT 1-4 MM; THE SUM TOTAL OF C, S, N, AND AL IMPURITIES IN THE STEEL SHOULD BE SMALLER THAN 0.01PERCENT. FACILITY: VERKH-ISETSKII MET. ZAVOD, USSR.

UNCLASSIFIED

Epidemiology

USSR

PISKAREVA, N. A., KUZNETSOVA, E. Ye., POPOVA, R. P., and PRATUSEVICH, R. M.,
Leningrad Scientific Research Institute of Childrens Infections

"Acute Febrile Diseases in Children Caused by Mixed Enterovirus and Adenovirus
Infection"

Moscow, Voprosy Virusologii, No 5, 1971, pp 624-625

Abstract: Hospitalized children convalescing from dysentery (Sh. sonnei) developed a disease of focal character. Virological and serological studies revealed the participation of two viral agents -- adenovirus and ECHO-1 virus. The clinical picture included the syndrome of serous meningitis in some cases and symptoms of respiratory infection in others. In some children, it was impossible to tell from the clinical symptoms which pathogen was more significant. In a few cases, the viral infection exacerbated the dysentery. Thus, an isolated group of children recovering from dysentery (Sh. sonnei) experienced an outbreak of diseases with heterogeneous clinical symptoms caused by ECHO-1 virus and adenovirus type 3.

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USSR

UDC 621.357.7:669.65'5

KOVLYAYEVA, L. I., and PRATUSEVICH, YE. P.

"Electrolytic Plating of Tin-Zinc Alloy"

Elektron. tekhnika. Nauch.-tekhn. sb. Tekhnol., organiz., proiz-va i oborud.
(Electronic Technology. Collection of Scientific Research Papers on Technology
and Organization of Industrial Production and Equipment), Vyp 2(50), 1972,
pp 57-62 (from Referativnyy Zhurnal -- Khimiya, Svochnyy Tom, No 23(II), 1972,
Abstract No 231261)

Translation: Comparative data are presented on plating the Sn-Zn alloy from
different electrolytes. Suggestions are presented for the preparation of Sn-
Zn alloy and of stable ammonium pyrophosphate electrolyte. The oxidation of
 Sn^{+2} into Sn^{+4} is prevented by the addition of 5-10 g of hydrazine sulfate and
2-4 ml. of 50% ethylenamine per liter of the electrolyte.

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USSR

UDC 621.357.7:669.65'5(088.8)

KOVYLYAYEVA, L. I., PRATUSEVICH, YE. P.

"Method of Electrolytic Deposition of Tin-Zinc Alloy"

USSR Author's Certificate No 308099, filed 30 Oct 69, published 26 Aug 71 (from RZh-Khimiya, No 6 (II), Jun 72, Abstract No 6L317P)

Translation: A procedure was patented for electrolytic deposition of Sn-Zn alloy distinguished by the fact that in order to increase the corrosion resistance of the alloy, hydrazine sulfate, ethylenediamine and the Progress wetting agent with the following component ratio are introduced into the electrolyte: (in grams/liter): 28-40 SnCl_2 , 140-150 $\text{K}_4\text{P}_2\text{O}_7$, 5-6 ZnO , 100-110 NH_4Cl , 0.5-1.0 gelatin, 5-10 hydrazine sulfate, 2-4 ethylenediamine (50% aqueous solution), 1-3 ml/liter of Progress wetting agent. The process takes place with a pH of 7.5-8.5, D_c of 1-5 a/dm^2 and at a temperature of 18-25°. The deposits of the alloy are semilustrous, fine crystalline, silver-white color. The alloy deposits are stable with respect to composition for a prolonged operating time of the electrolyte and do not in practice depend on D_c or the Sn concentration in the electrolyte within the recommended limits. The Zn content in the alloy is 18-22%, and the Sn content is 78-82%. The alloy has high corrosion resistance and is characterized by a prolonged capacity for soldering with an alcohol-rosin flux.

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USSR

UDC 621.372.83

PRAVDA, V. I., LIZHDVOY, K. YA., ANDRAKOVSKAYA, I. A.

"Experimental Study of the Coupling Impedance of Resonator Chains with a Positive Mutual Inductance Coefficient"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1037-1041

Abstract: The results are presented from an experimental study of the coupling impedance of delay systems of the resonator chain type with a positive mutual inductance coefficient as a function of the geometric dimensions. The results of the experimental study of the dispersion characteristics were presented previously [Ya. K. Trokhimenko, et al., Radiotekhnika, Khar'kov State University Press, Khar'kov, No 3, 40, 1966] Graphs are presented showing the coupling impedance as a function of the diameter of the drift channel for points of the dispersion characteristic corresponding to the phase shift by $5\pi/3$, $3\pi/2$, $4\pi/3$ and $7\pi/6$. When investigating the dependence of the coupling impedance on the number of slots, a study was made of delay systems with two-slot and single-slot diaphragms characterized by the same shape of the dispersion characteristics in approximately the same pass band. The presented graphs show that the two-slot delay systems have approximately the same coupling impedance as the single-slot ones. The degree of coupling between the cells of the system has a significant effect on the magnitude of the coupling impedance. This relation

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PRAVDA, V. I., et al., Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 1037-1041

is also illustrated. The greatest increase in the coupling impedance with a decrease in the parameter a (an increase in the slot size) is observed for $\phi = 7\pi/6$. For $\phi = 3\pi/2$, the increase is insignificant. For $d/\lambda \approx 0.3$ [d is the length of the drift gap; λ is the period of the system], the coupling impedance has the largest value near the shortwave limit of the operating frequency band of the delay system and the least value of the coupling impedance on the edges of the operating frequency band. The application of symmetric drift tubes with such walls lead to concentration of the electric field in the zone of interaction with the electron beam and significantly increases the coupling impedance in the entire operating frequency band of the delay system. The coupling impedance increases with a decrease in the thickness of the diaphragm [iris]. However, a decrease in thickness of the iris worsens the heat dissipating properties of the delay system.

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1/2 018
TITLE—ELECTROPHYSIOLOGICAL ANALYSIS OF THE ANAESTHETIC PROPERTIES OF
NOVOCAIN AND XYLOCAIN —U-
AUTHOR—PRAVDICHNEMINSKAYA, T.V.
COUNTRY OF INFO—USSR
SOURCE—EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 3, PP
78-81
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—ANESTHETIC, ELECTROPHYSIOLOGY, NERVOUS SYSTEM/(U)NOVOCAIN
ANESTHETIC, (U)XYLOCAIN ANESTHETIC
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1858
STEP NO--UR/0481/70/000/003/0078/0081
CIRC ACCESSION NO--AP0125469
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR ANALYSED
ELECTROPHYSIOLOGICALLY INFLUENCE ON THE DIAPHRAGMATIC NERVE OF WARM
BLOOD ANIMALS IN SITU A SERIES OF CONCENTRATIONS OF NOVOCAIN AND
XYLOCAIN. RESPIRATORY SALVES OF THE CERVICAL SECTION OF THE NERVE WERE
RECORDED PRIOR TO, DURING AND AFTER ACTION OF ANAESTHETICS. COMPARISON
OF TEMPORAL AMPLITUDE AND OTHER CHARACTERISTICS OF THE SALVES SHOWS THAT
XYLOCAIN EXCEEDS NOVOCAIN AS TO RAPIDITY, DEPTH AND DURATION OF ACTION.
FACILITY: FIZIOLOGICHESKAYA LABORATORIYA INSTITUTA KHIRURGII IM.
A. V. VISHNEVSKOGO AMN SSSR, MOSKVA.

UNCLASSIFIED

ELECTRICAL ENGINEERING
Equipment / Machinery

USSR

UDC 621.311.25:621.039.002.72

PRAVDIN, L. N.

"Peculiarities of Mounting of Nuclear Power Plant Equipment and Preparation of Organization and Conduct of Installation"

Energ. Str-vo [Power Construction -- Collection of Works], No 4 (130), Moscow, Energiya Press, 1972, pp 20-23, (Translated from Referativnyy Zhurnal, Elektrotekhnika i Energetika, No 8, 1972, Abstract No 8 U73 by A. M. Bovshovskiy).

Translation: Peculiarities of the development of nuclear power engineering in the USSR and the primary parameters of equipment installed or planned for installation in nuclear power plant reactors in the USSR are studied. The reasons for the greater difficulty of installation of the equipment of nuclear power plants in comparison to thermal power plants are analyzed. The following main problems are noted in the organization of installation work during construction of a nuclear power plant: training of personnel, development of technological and plan-installation documentation, as well as assimilation of nonstandard installation resources and equipment.

1/1

Analysis and Testing

USSR

UDC: 620.179.14

PRAVDIN, L. S. and RODGIN, N. M., Institute of the Physics of Metals, UNTs (expansion unknown), Academy of Sciences, USSR

"Electromagnetic Inspection of the Isothermal Hardening of 40Kh Steel"

Sverdlovsk, Defektoskopiya, No 2, 1972, pp 62-70

Abstract: An investigation is made of the possibility of electromagnetic inspection of the hardening of 40Kh steel in alternating fields of different frequencies, as well as in alternating fields with constant superposed magnetization by a constant field of different value. A method is proposed for the nondestructive electromagnetic float inspection of the hardening of 40Kh steel within the isothermal holding-temperature limits of 230-380° with the use of a constant superposed magnetization field of 40-50 oersted and a two-frequency regime of transducer operation. 6 figures. 2 tables.

AA0040756

PRAYDIN

V.S.

UR 0482

5

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3/70

234624 MOULD LUBRICATOR FOR CONTINUOUS CASTING
PLANTS uses feed channels which issue
above the collector so as to ensure even distrib-
ution of lubricant round the mould perimeter,
Lubricant is pumped etc. from tank 1 to the
frame 2 on the mould 3 and via a feedline 4 with
choke 5. It thus reaches the collector 7 and as
this fills so the lubricant fills all the channels
8. When there is excess lubricant pressure in the
collector, the lubricant is fed in identical port-
ions into all these channels and thus flows out at
the mould perimeter in identical portions. 7.10.65.
as 1031428/22-2. EVTEEV D.P et al. Metallurgical
Plant Design Inst. (26.6.69.) Bul.4/10.1.69.
Class 31c. Int.Cl. B22d.

1/3

18

19750439

AA0040756

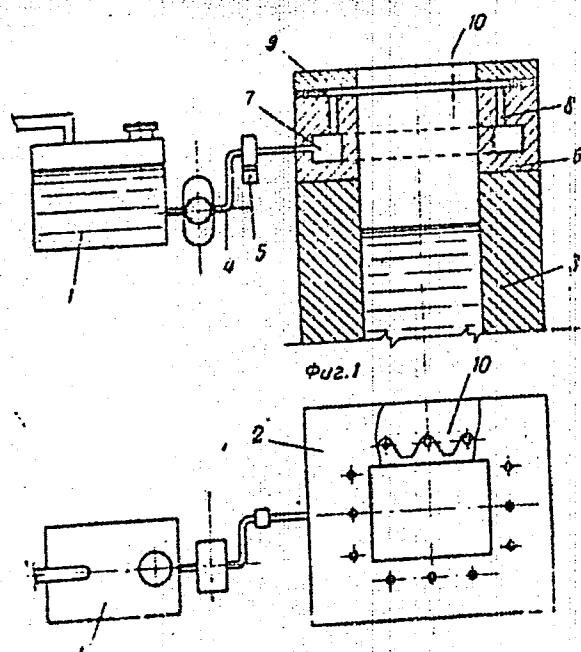


Fig. 2

19750440

AA0040756

AUTHORS: Yevteyev, D. P.; Zhidovinova, M. M.; Karpeka, V. A.;
Kaushanskiy, A. S.; Krulevetskiy, S. A.; Pravdin, V. S.;
Satanovskiy, Ya. Ye.; Ful'makht, V. V.; Shabanov, A. N.

Gosudarstvennyy Soyuznyy Institut po Proyektirovaniyu
Metallurgicheskikh Zavodov

19750441

3/3

UNCLASSIFIED *P* PROCESSING DATE--17JUL70
TITLE--NMR SPECTRA OF ACETYLATED 1,0,ACYL,0, GLUCOPYRANOSSES AND ACETYLATED
METHYL 1,0,ACYL,0, GLUCOPYRANURONATES. SHIELDING EFFECT OF THE AROMATIC
AUTHOR--PRAVDIC, A., KEGLEVIC, D.
COUNTRY OF INFO--YUGOSLAVIA
SOURCE--CARBOHYD. RES. 1970, 12(2), 193-9
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--STEREOCHEMISTRY, NUCLEAR MAGNETIC RESONANCE, ACETYLENE,
CARBOHYDRATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1984/1311 STEP NO--NE/COCC/70/012/002/0193/0199
CIRC ACCESSION NO--APOC55982
UNCLASSIFIED *6/5/73*

Acc. Nr:

AP0055982

Abstracting Service:

CHEMICAL ABST. 5-70

Ref. Code:

NE0000

101017c NMR spectra of acetylated 1-O-acyl-D-glucopyranoses and acetylated methyl 1-O-acyl-D-glucopyranuronates. Shielding effect of the aromatic substituent on the 2-acetoxy group. Praydic, N.; Keglevic, D. (Tracer Lab. Inst. "Ruder Boskovic," Zagreb, Yugoslavia). *Carbohydr. Res.* 1970, 12 (2), 193-9 (Eng). The NMR spectra of acetylated 1-O-acyl-D-glucopyranoses and acetylated Me 1-O-D-glucopyranuronates showed that, in derivs. contg. an aryl- or indolylacetyl grouping at C-1, one of the Ac group signals appears at unusually high field (τ 8.18-8.43). The highest shift is assocd. with the β -D-linked 1-O-(indol-3-ylacetyl) substituent. The synthesis of 3,4,6-tri-O-acetyl-2-O-trideuterioacetyl-1-O-(indol-3-ylacetyl)-D-glucopyranose allowed the assignment of the upfield-shifted signal to the 2-acetoxy group. A rationalization of this specific shielding, based on preferential steric orientation, is presented.

RCYM

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19841311

USSR

UDC 621.382.3

KIR'YANOVA, V.M., MAKOVIIY, A.N., PRAVDINA, T.V., STAROV, V.G., FURSOV, V.V.,
SHCHEVELEV, M.I.

"To The Problem Of The Physical Interconnection Of The Drift Of Certain Parameters
Of Silicon Drift Transistors"

Sb.Tr.po poluprovodnikovym materialam, priboram i kh primeneniyu (Collection Of
Works On Semiconductor Materials, Devices, And Their Application), Voronezh, 1971,
pp 75-80 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No
11B255)

Translation: Using two types of silicon drift transistors as an example, the
dependence is studied of the electrical parameters on the dislocation density,
the content of O_2 and the resistivity of the initial Si, and the correlation be-
tween the values of the parameters and their changes in the process of current
aging. 1 tab. 2 ref. V.B.

1/1

P 2
USSR

PASECHNIK, M. V., KORZH, I. A., KASHUBA, I. Ye., MISHCHENKO, Y. A., PRAVDIVYY, N. M., and SANZHUR, I. Ye., Institute of Physics of the Academy of Sciences Ukrainian SSR

"Study of the Elastic Scattering of Neutrons in the 0.3-4.1 Mev Energy Region by Ti and Cr Nuclei Using the Optical Model of the Nucleus"

Moscow, Yadernaya Fizika, Vol 11, No 5, May 70, pp 958-966

Abstract: The angular distributions of neutrons elastically scattered by Ti and Cr nuclei were measured over the angles 20-145° for neutron energies 2, 2.5, and 3 Mev, and data are given on the polarizing capacity of these nuclei for neutron energies of 1.5 and 2.0 Mev. The data are compared with the angular distributions of elastically scattered neutrons and with polarization occurring under elastic scattering as calculated on the basis of the six-parameter optical model of the nucleus. The purpose of this comparison was to make a systematic study of the variation with energy of the parameters of the optical potential, which function describes the interaction between the neutron and the nucleus. The values of the optimal parameters V_c and W_c were obtained by a least-squares fitting of data on the angular distributions of elastically scattered neutrons.

1/2

USSR

PASECHNIK, M. V., et al, Yadernaya Fizika, Vol 11, No 5, May 70, pp 958-966

A comparison of calculated and experimental total cross sections showed satisfactory agreement between the two. The values of the optimal parameters of the optical model were calculated by a three-parameter analysis; the forms of the angular distributions calculated by the three-parameter variation method did not greatly differ from the angular distributions calculated with a two-parameter variation. This is said to indicate that the parameters of the optical potential most sensitive to the magnitude and form of the angular distributions are the values of the real and imaginary parts of the central potential.

2/2

P
USSR

UDC 621.396.75

BELOUSOV, N. N., KIRSANOV, N. I., PRAVDUKHIN, V. M.

"Effect of Inertial Differentiation on the Accuracy of Measuring Delays by a Differential Correlator"

Tr. Uralskogo politekhn. in-ta (Works of the Urals Polytechnical Institute), 1970, Collection 183, pp 106-109 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G88)

Translation: In differential direction finders with direction finding by the signal minimum, the optimal device for measuring the delay between two correlated signals is a discriminator with delayed synchronization. The actual differentiating device of the discriminator introduces errors into the measurement of the delay caused by the fact that the amplitude and phase-frequency characteristics of it differ from the same characteristics of an ideal differentiating device. From comparison of the real and ideal discrimination characteristics it follows that in the real case there is null shift of the discrimination characteristic and a decrease in its steepness. This leads to a systematic error equal to the null displacement and to a random error determined by the instability of the elements of the differentiating device. In some cases, the null displacement
1/2

USSR

BELOUSOV, N.N., et al, Tr. Uralskogo politekhn. in-ta (Works of the Urals Polytechnical Institute), 1970, Collection 183, pp 106-109 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G88)

is equal to the time constant of the differentiating circuit, and the random error can be determined by known instability of the parameters of the device. There are two illustrations and a two-entry bibliography.

2/2

279

USSR

UDC 621.396.75

KOMAROV, G. A., LARIONOV, A. S., MEDVEDEVA, L. T., PRAVDUKHIN, V. M.

"Discriminator of a Spatial Delay Tracking Meter"

Tr. Uralskogo politekhn. in-ta (Works of Urals Polytechnical Institute), 1970, Collection 183, pp 74-79 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8G91)

Translation: For direction finding methods using spaced reception, tracking meters are used based on correlation processing of the received signal. The discrimination characteristic of the tracking meter for measuring the relative delay of noise type signals received by the spaced arrays is proportional to the derivative of the correlation function of the signal. When necessary to measure the signal delay with respect to the envelope of the correlation function of the high-frequency noise type signal, the use of a discriminator is proposed in the form of a device operating by the principle of linear conversion of the signal spectrum to a spectrum with different intermediate frequencies with automatic phase compensation on the difference frequency. A calculation of the discrimination characteristic of the discriminator and the results of experimental testing are presented. There are three illustrations and a four-entry bibliography.

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- 227 -

USSR

UDC 539.67

PRAVDYUK, N. F., PEREVEZENTSEV, V. N., and VIKHOROV, V. I.

"Study of Thermal Annealing of Radiation Damage in Metals by the Internal Friction Method"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 101-104

Abstract: The effect of neutron irradiation and subsequent isochronous annealing on internal friction and critical stress of copper and molybdenum was studied.

As a result of irradiation the amplitude independent internal friction of copper decreases, while that of molybdenum increases; the critical stress for both metals increases several times.

The variation of copper Q^{-1} is explained on the basis of the Granato-Lucke dislocation model, and that of molybdenum by the presence of "free" (not related to dislocations) point defects. The rise of copper and molybdenum critical stress is governed by the effect of radiation strengthening. 4 figures, 4 references.

1/1

- 77 -

Public Health, Hygiene and Sanitation

USSR

UDC 614.484:615.285.7]:614.72

TUNIK, A. I., ANANOVSKIY, L. N., PRAVE, V. Ye., TIKHOTSKAYA, A. N.,
DERNITSYNA, Ye. A., and MINKINA, T. A., Moscow Municipal Disinfection
Station

"Hygienic Evaluation of the Air in Places Treated With Chlorophos"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,
pp 17-20

Abstract: Analysis of 250 air samples in a special experimental chamber and of air samples from well-ventilated places in cafes, hostels, hospitals, and restaurants showed that 3 hours after treatment with a 5% water solution of the organophosphorus insecticide chlorophos, the air contained no more than 0.5 mg/m³ of the compound (maximum permissible concentration). With very poor ventilation it took as long as 24 hours before the concentration of the insecticide dropped to the permissible level. The external temperature was an important factor. When the outdoor and indoor temperatures differed considerably and the windows were open, all traces of chlorophos disappeared within one hour of treatment.

1/1

USSR

UDC: 531.754:621.039.85

KREYNDLIN, I. I., MUKHIN, S. S., NOVIKOV, V. S., PRAVIKOV, A. A.

"The RP-60 Radioactive-Isotope Densimeter"

Tr. VNII Radiats. Tekhn. [Works of All-Union Scientific Research Institute for Radiation Technology], 1972, No 7, pp 80-86 (Translated from Referativnyy Zhurnal Metrologiya i Izmeritel'naya Tekhnika, No 12, 1972, Abstract No 12.32.1187, by V. S. K.).

Translation: A general view and schematic diagram are presented for an apparatus for measurement of density of soils by a gammascopic method. The operation of the densimeter (D) is based on transmission of a beam of gamma rays, for example, those provided by Co60 with an activity of 0.16 μ C, through the object being tested, and measurement of the attenuation of the rays by the object being studied, in this case soil. The radioactive D includes a DPG-2 sensor, a converter, an I-1 intensimeter (with strip chart recorder) and P-1 power supply with nominal voltage 12 v. The measurement range of the D is 1-2.3 g/cm; the measurement error is 0.08 g/cm; the sensor has a probe diameter of 61 mm; measurement depth is 5 m; the operating temperature ranges from -10 to +40° C. The RP-60 radioactive D has passed state testing and is recommended for series production. 3 figures, 2 biblio. refs.

1/1

USSR

TELESHOV, E. N., and PRAVEDNIKOV, A. N.

"Production Methods and the Results of the Utilization of Thermostable Plastics"

Moscow, Plasticheskiye Massy, No 2, 1973, pp 3-8

Abstract: A review with 57 references discussing most recent progress in thermostable plastics. Following types of plastics are covered: aromatic polyamides, polyarylates, aromatic polysulfones, polyphenylene oxides, aromatic polyimides, and polybenzimidazoles. In the USSR the technology of plastics which are thermally stable up to 250°C has been developed. There is an almost total lack of polymers capable of performance at higher temperatures. Several directions are proposed for production of thermally stable materials: synthesis of thermally stable oligomers which solidify without producing volatile materials; synthesis of thermoplastic fluoropolymers whose solidification leads to the formation of heterocyclic structures by an isomerization mechanism; and finally development of new polymers with higher thermal stability.

1/1

- 62 -

USSR.

UDC 541.15

KOTOV, B. V., PRAVEDNIKOV, A. N., Physico-Chemical Institute,
im. Karpov

"Competition in Charge Capture by Additives in Gamma-Irradiated
Polyvinyl Chloride"

Moscow, Doklady Akademii Nauk SSSR, Vol 198, No 1, 1971, pp 134-
137

Abstract: Studies of recent years have shown quite convincingly
the important role played by the transfer and capture of charges
in the nonadditive effects of radiation chemistry (usually joined
under the term "energy transfer"); yet only little attention has
been given to the behavior of the additives of donors and
acceptors of electrons existing in irradiated polymers, despite
the obvious importance of such research, both in the study of
radioprotectors and for better understanding of radiation
processes in polymers.

The present study was aimed at the competition between donors and
acceptors in various combinations, in polyvinyl chloride irradiated

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SSSR

KOTOV, B. V., et al, Doklady Akademii Nauk SSSR, Vol 198, No 1, 1971, pp 134-137

at 77°K. Both low-temperature electron spectroscopy and (to a smaller extent) electron magnetic resonance were used. Graphic and tabular data on ion-radical absorption spectra, relationship of ion-radical formation to dose, various electron paramagnetic spectra, and the relative concentrations of the tetracyanoquinodimethane and tolylamine radicals in a polyvinyl chloride sample during photoionization and γ -radiolysis, accompany the paper.

2/2

- 81 -

1/2 018
UNCLASSIFIED
TITLE--KINETICS OF THE OXIDATIVE THERMAL DEGRADATION OF
POLY(PHENYLBUTOXYSILOXANES) -U-
AUTHOR--(04)-SIDNEV, A.I., KHVASHCHEVSKAYA, YU.V., MOISEYEV, A.F.,
PRAVEDNIKOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 362-7
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--REACTION KINETICS, OXIDATIVE DEGRADATION, THERMAL DEGRADATION,
SILOXANE, ALKYL RADICAL, OXYGEN COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0321
CIRC ACCESSION NO--AP0111515
STEP NO--UR/0459/70/012/002/0362/0367
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111515

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDATIVE THERMAL DEGRADATION OF THE TITLE POLYMERS (I) (PREPD. BY SIMULTANEOUS HYDROLYSIS AND ESTERIFICATION OF PHISCL SUB3) CONTG. VARIOUS AMTS. OF DBU GROUPS WAS STUDIED AT 150-240DEGREES. A SIGNIFICANT DEGRADATION COMMENCED AT 170DEGREES. DURING THE INDUCTION PERIOD, THE REACTION RATE WAS 1ST ORDER WITH RESPECT TO DBU GROUP CONTENT. THE DEGRADATION PRODUCTS OF I CONTAINED CO, CO SUB2, H SUB2 O, AND TRACES OF H AND CH SUB4. THE DEGENERATIVE BRANCHING OF I DURING DEGRADATION WAS CAUSED BY HYDROPEROXIDES. ADDN. OF 0.1PERCENT NEOZONE A (II) INCREASED THE INDUCTION PERIOD AT 200DEGREES FROM 5 TO 180 MIN, SUGGESTING THAT II WAS THE MOST EFFECTIVE STABILIZER OF I. THE OXIDATIVE THERMAL DEGRADATION RATE WAS PROPORTIONAL TO THE DBU-SI RATIO. A RADICAL AUTOCATALYTIC DEGRADATION MECHANISM WAS PROPOSED.

UNCLASSIFIED

1/2 018
UNCLASSIFIED
PROCESSING DATE--02JCT70
TITLE--KINETICS OF THE OXIDATIVE THERMAL DEGRADATION OF
POLY(PHENYL-BUTOXIVSILOXANES) -U-
AUTHOR--(04)-SIDNEV, A.I., KHVASHCHEVSKAYA, YU.V., MOISEYEV, A.F.,
PRAVEDNIKOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2), 362-7
DATE PUBLISHED--70
SUBJECT AREAS--CHEMISTRY, MATERIALS
TOPIC TAGS--REACTION KINETICS, OXIDATIVE DEGRADATION, THERMAL DEGRADATION,
SILOXANE, ALKYL RADICAL, OXYGEN COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0321
STEP NO--UR/0459/70/012/002/0362/0367
CIRC ACCESSION NO--AP0111515
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0111515

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDATIVE THERMAL DEGRADATION OF THE TITLE POLYMERS (I) (PREPD. BY SIMULTANEOUS HYDROLYSIS AND ESTERIFICATION OF PHISCL SUB3) CONTG. VARIOUS AMTS. OF OBU GROUPS WAS STUDIED AT 150-240DEGREES. A SIGNIFICANT DEGRADATION COMMENCED AT 170DEGREES. DURING THE INDUCTION PERIOD, THE REACTION RATE WAS 1ST ORDER WITH RESPECT TO OBU GROUP CONTENT. THE DEGRADATION PRODUCTS OF I CONTAINED CO, CO SUB2, H SUB2 O, AND TRACES OF H AND CH SUB4. THE DEGENERATIVE BRANCHING OF I DURING DEGRADATION WAS CAUSED BY HYDROPEROXIDES. ADDN. OF 0.1PERCENT NEOZONE A (II) INCREASED THE INDUCTION PERIOD AT 200DEGREES FROM 5 TO 180 MIN, SUGGESTING THAT II WAS THE MOST EFFECTIVE STABILIZER OF I. THE OXIDATIVE THERMAL DEGRADATION RATE WAS PROPORTIONAL TO THE OBU-SI RATIO. A RADICAL AUTOCATALYTIC DEGRADATION MECHANISM WAS PROPOSED.

UNCLASSIFIED

1/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--CHARGE TRANSFER COMPLEXES AND CHEMICAL REACTIONS BETWEEN PRIMARY AROMATIC AMINES AND AROMATIC CARBOXYLIC ACID DERIVATIVES IN THE SOLID

AUTHOR--(04)--KARDASH, I.E., GLUKHOYEDOV, N.P., PRAVEDNIKOV, A.N., MEDVEDEV, S.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 391-4 (PHYS CHEM)

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IR SPECTRUM, UV SPECTRUM, PRIMARY AROMATIC AMINE, AROMATIC CARBOXYLIC ACID, LOW TEMPERATURE EFFECT, CHLORINATED ORGANIC COMPOUND, PHTHALIC ANHYDRIDE, MALEIC ANHYDRIDE, COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/0699

STEP NO--UR/0020/70/191/002/0391/0394

CIRC ACCESSION NO--AT0124371

UNCLASSIFIED

2/2 028

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124371

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. UV AND IR SPECTRA WERE REPORTED FOR COSUBLIMED SYSTEMS OF: CHLORANIL, TEREPHTHALOYL CHLORIDE, ISOPHTHALOYL CHLORIDE, PHTHALIC ANHYDRIDE AND MALEIC ANHYDRIDE WITH PRIMARY AND TERTIARY AMINES: P,C SUB6 H SUB4, (NH SUB2) SUB2, BENZIDINE, P,DIAMINODURENE, M,C SUB6 H SUB4 (NH SUB2) SUB2 AND (P,ME SUB2 NC SUB6 H SUB4) SUB2 TAKEN IN PAIRS. SUCH COSUBLIMATION OF AROMATIC AMINES AND ACID ANHYDRIDES OR CHLORIDES ONTO A SURFACE COOLED WITH LIQ. N RESULTED IN COMPLEX FORMATION AND TRUE CHEM. REACTIONS AT SIMILAR TO 120DEGREESK, I.E. SOMEWHAT ABOVE THAT OF LIQ. N AT WHICH NO TRUE REACTIONS WERE OBSERVED. EVIDENTLY AT THE SLIGHTLY HIGHER TEMP. IT BECOMES POSSIBLE TO HAVE ROTATION OF INDIVIDUAL MOL. GROUPS OR SOME MOBILITY OF MOLECULES PER SE. THE CHARGE TRANSFER COMPLEX FORMATION WAS CHARACTERIZED BY BAND SHIFTS, WHICH WERE TABULATED. THE ELECTRONIC SPECTRA OF THE COSUBLIMATES AT 77DEGREESK REMAINED SUBSTANTIALLY UNCHANGED WITH TIME, BUT SLIGHT WARMING RESULTED IN THE DISAPPEARANCE OF ABSORPTION IN THE VISIBLE SPECTRUM AND DEVELOPMENT OF CHEM. REACTIONS WHICH COULD BE FOLLOWED BY IR SPECTRA, WHICH REVEALED AMIDE GROUP DEVELOPMENT.

UNCLASSIFIED

1/2 010 UNCLASSIFIED
TITLE--PREPARATION OF POLYPHENYLENE OXIDES -U- PROCESSING DATE--13NOV70
AUTHOR--(02)-KOPYLOV, V.V., PRAYEDNIKOV, A.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 267,074
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--PHENOL, CONDENSATION REACTION, CATALYST, PHENYLENE, ORGANIC
OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3004/1807 STEP NO--UR/0482/70/000/000/0000/0000
CIRC ACCESSION NO--AA0132073
UNCLASSIFIED

2/2 010
CIRC ACCESSION NO--AA0132073
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT. POLY(PHENYLENE OXIDES) WERE PREPD.
BY THE OXIDATIVE POLYCOMBINATION OF ALKYL SUBSTITUTED PHENOLS ON A
CUPRAMINE CATALYST IN THE PRESENCE OF ALKALI OR ALK. EARTH METAL
HYDROXIDES AT GREATER THAN OR EQUAL TO 60DEGREES.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MOLECULAR WEIGHT AND MOLECULAR DIMENSIONS OF POLYDIOXOLANE -U-
AUTHOR--(04)-BERMAN, YE.L., PRAVIKOVA, N.A., LYUDVIG, YE.B., DAVTYAN, A.G.
COUNTRY OF INFO--USSR
SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(3), 580-4
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CATALYTIC POLYMERIZATION, ORGANIC OXYGEN COMPOUND, MOLECULAR
WEIGHT, INTRINSIC VISCOSITY, CYCLIC GROUP, ORGANODANTIMONY COMPOUND,
HETEROCYCLIC OXYGEN COMPOUND
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1995/1205 STEP NO--UR/0459/70/012/003/0580/0584
CIRC ACCESSION NO--AP0116670
UNCLASSIFIED

2/2 018

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116670

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. WT. (M SUBW),
POLYDISPERSITY, AND MOL. DIMENSIONS OF POLYDIOXOLANE (I) (PREPD. BY
POLYMN. OF 1,3,DIOXOLANE IN ETCL IN THE PRESENCE OF ET SUB3 OSBCL SUB6)
WERE STUDIED IN PHCL. THE INTRINSIC VISCOSITY (ETA) (DL.-G, PHCL,
25DEGREESC) EQUALS 2.0 TIMES 10 PRIME NEGATIVE3 M SUBW PRIME0.5, WITHIN
THE RANGE OF 0.6 IS SMALLER THAN (ETA) IS SMALLER THAN 1.6. THE
POLYDISPERSITY AND THE QUADRATIC RADII OF INERTIA (R SUB2 PRIME2)
PRIME0.5 WERE CALCD. I HAVING (ETA) SMALLER THAN 0.6 EXHIBITED HIGH
POLYDISPERSITY. CYCLIC MOLS. WERE SOMETIMES FORMED IN I HAVING (ETA)
SMALLER THAN 0.6. FACILITY: FIZ. KHIM. INST. IM. KARPOVA,
MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--MOLECULAR WEIGHTS OF POLYBUTADIENES PREPARED WITH THE PI
ALLYLNICKEL CHLORIDE DIMER AND TITANIUM TETRACHLORIDE CATALYST SYSTEM
AUTHOR--(04)-PAKURO, N.I., ZABOLOTSKAYA, YE. V., PRAVIKOVA, N.A., MEDVEDEV,
S.S.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(2), 361-2 (CHEM)
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--MOLECULAR WEIGHT, POLYBUTADIENE, ORGANONICKEL COMPOUND,
CATALYTIC POLYMERIZATION, CHROMATOGRAPHY, SOLUBILITY, INTRINSIC
VISCOSITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1984/1578 STEP NO--UR/0020/70/190/002/0361/0362
CIRC ACCESSION NO--AT0100196
UNCLASSIFIED

Z/2 021

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0100196

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOL. WTS. OF THE TITLE POLYBUTADIENES (I) WERE STUDIED BY SEDIMENTATION CHROMATOG. AND VISCOMETRY. THE I WERE DISSOLVED IN A MIXT. OF 34PERCENT PHME AND 16PERCENT ETOH AND PPTD. WITH A MIXT. OF 45PERCENT PHME AND 55PERCENT ETOH. THE SOLY. OF I INCREASED WITH BUTADIENE CONC. AND DECLINED WITH INCREASING CATALYST CONC. THE INTRINSIC VISCOSITY OF THE I WAS PROPORTIONAL TO THE BUTADIENE CONC. AND INVERSELY PROPORTIONAL TO THE CATALYST CONC., PRESUMABLY DUE TO THE FORMATION OF "LIVING" POLYMERS. MOL. WT. DISTRIBUTION CURVES HAD 2 MAX., WHICH WERE SHIFTED TO THE RIGHT AT HIGH BUTADIENE CONCNS. THE POLYDISPERSITY (WHICH WAS VERY HIGH) DEPENDED ON REACTION CONDITIONS.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--REACTIONS OF ATOMIC OXYGEN WITH METHANE DURING THE GAS PHASE
PHOTOLYSIS OF AN OXYGEN METHANE MIXTURE AT 1925-1550 ANGSTROM -U-
AUTHOR-(02)-VILESOV, F.I., PRAVILOV, A.M. P
COUNTRY OF INFO--USSR
SOURCE--KHIM. VYS. ENERG. 1970, 4(3), 220-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--OXYGEN, METHANE, PHOTOLYSIS, METHANOL, FORMALDEHYDE, CARBON
DIOXIDE, PRESSURE EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3008/0862 STEP NO--UR/0456/70/004/003/0220/0225
CIRC ACCESSION NO--AP0137890
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--27NOV70

2/2 026

CIRC ACCESSION NO--AP0137890

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE FORMATION OF MECH, CH SUB2 O,
AND CO SUB2 WAS FOLLOWED DURING THE PHOTOCHEM. REACTION OF O WITH CH
SUB4. MAX. QUANTUM YIELDS ARE GIVEN AND THEIR DEPENDENCE ON THE
PRESSURE OF CH SUB4 INDICATES THAT MECH AND CH SUB2 O ARE THE PRIMARY
REACTION PRODUCTS. CO SUB2 IS A 3RD ORDER REACTION PRODUCT.
FACILITY: NAUCH. ISSLED. FIZ. INST., LENINGRAD. GOS. UNIV. IM.
ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

Powder Metallurgy

UDC 621.762.669.018.24(088.8)

USSR

LOBOVA, T. A., KALIKHMAN, V. L., ZELIKMAN, A. N., and PRAVOVEROVA, L. L.,
Moscow Institute of Steel and Alloys

"Conducting Solid Lubricant"

USSR Authors' Certificate No 296802, Cl. C 10 m 7/02, filed 23 Sep 69, published 10 May 71 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 1G288P by S. Krivonosova)

Translation of Abstract: The inventors suggest a high-efficiency antifriction lubricant containing Nb or Ta diselenide in the form of a solid solution in W or Mo diselenide. The lubricant is composed of 0.5-30 mol.% NbSe₂ or TaSe₂ and 99.5-70% MoSe₂ or WSe₂. The lubricant has high moisture resistance. Electrical and antifriction properties of the lubricants are presented. One table.

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ANO012142

UR9013

AUTHOR-- AKHMATOV, S., CORRESPONDENT

NEWSPAPER-- PRAVDA UKRAINY, JANUARY 10, 1970, P 1, COLS 1-4, AND P 2, COLS 2-4

ABSTRACT-- THE ARTICLE IS A BRIEF BIOGRAPHICAL PROFILE OF ZOT IL, ICH NEKRASOV, DIRECTOR OF THE DNEPROPETROVSK INSTITUTE OF FERROUS METALLURGY /APPOINTED IN 1952/, LAUREATE OF THE LENIN AND STATE PRIZES, HERO OF THE SOVIET UNION AND MEMBER OF THE UKRAINIAN ACADEMY OF SCIENCES. HE WAS ELECTED CORRESPONDING MEMBER OF THE UKRAINIAN ACADEMY OF SCIENCES IN 1951. IT WAS ON HIS SUGGESTION THAT THE INSTITUTE OF FERROUS METALLURGY WAS RELOCATED FROM KIEV TO DNEPROPETROVSK WHERE ITS STAFF GREW TO 1,200 PEOPLE. IN ADDITION TO BEING DIRECTOR OF THE INSTITUTE, NEKRASOV HEADS THE DEPARTMENT OF IRON METALLURGY. A. P. CHEKMAREV, K. F. STAPODUROV, V. D. CHEKHANOV, I. G. UZLOV, A. V. PRAZDNIKOV, AND YU. N. TARAN ARE MENTIONED AS HIS COLLEAGUES.

19570971

USSR

UDC 621.397(204)

BLAGOVESHCHENSKIY, V. P., GANICH, P. Ya., PREDKO, K. G., SHIMYANSKIY, S. L.

"Using a Television System to Evaluate the Contrast Characteristics of Underwater Objects"

Izv. AN BSSR. Ser. fiz.-mat. n. (News of the Academy of Sciences of the BSSR. Physics and Mathematics Series), 1971, No 3, pp 118-121 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11G258)

Translation: A series-produced television installation is used to measure the frequency-contrast characteristics of layers of water of various thickness. It is shown that the resolution of underwater viewing systems is determined by the scattering properties of the water. The principles of modeling and dimensionless scaling parameters are used to analyze the visibility of objects in a scattering medium. Two illustrations, bibliography of eight titles.

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USSR

UDC: 548.5:535.37

KUZ'MINA, I. P., LOBACHEV, A. N., PREDTECHENSKIY, B. S., STAROSTINA, L. S.,
STOPACHINSKIY, V. B., KHAYDUKOV, N. M., Institute of Crystallography,
Academy of Sciences of the USSR

"Luminescent Crystals of Cuprous Oxide"

Moscow, Kristallografiya, Vol 18, No 3, May/Jun 73, pp 635-637

Abstract: The paper describes a method of growing large perfect crystals of Cu_2O to study bright narrow luminescence lines of recombination of free excitons. A polycrystal like specimen of Cu_2O is treated by zone melting with an electron beam. The resultant specimen usually consists of 2-3 crystals. A single crystal is grown, using one of these crystals as a seed. The result is a transparent cylindrical rod up to 10 mm in diameter and 100 mm long. These large crystals can be used to study many new properties of excitons -- interaction between excitons and the feasibility of making lasers based on cuprous oxide crystals.

1/1

- 7 -

1/2 007 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MOVEMENT OF SINGLE DISLOCATIONS IN A DISLOCATION ENSEMBLE -U-
AUTHOR--STRATAN, I.V., PREDVODITELEV, A.A., STEPANOVA, V.M.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TVERD. TELA 1970, 12(3), 767-73
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--CRYSTAL DISLOCATION, SODIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1988/0657 STEP NO--UR/0181/70/012/003/0767/0773
CIRC ACCESSION NO--AP0105636
UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105636

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOVEMENT OF SINGLE DISLOCATIONS IN THE DISLOCATION ENSEMBLE IN NaCl CRYSTALS WAS INVESTIGATED. THE FREE PATHS OF THE DISLOCATIONS DEPEND ON THE MAGNITUDE OF THE APPLIED STRESS AS WELL AS ON THE DISTRIBUTION OF DISLOCATIONS AT A GIVEN POINT IN THE CRYSTAL. DISTRIBUTIONS OBTAINED FOR THE FREE PATHS EXHIBIT A MAX. WHICH IS SHIFTED TOWARD LONGER WAVELENGTHS WHEN THE EXTERNAL STRESS INCREASES AND TOWARD SHORTER FREE PATHS WHEN DISLOCATION D. INCREASES. PROLONGED STOPS OF THE DISLOCATIONS IN THE ENSEMBLE MAY BE CAUSED BY HEAD ON COLLISIONS OF THE DISLOCATIONS AND BY THE FLUCTUATIONS OF LONG RANGE NONCOMPENSATED FIELDS OF THE STRESS OF DISLOCATIONS BY THE ENSEMBLE. THE LATTER IS ESP. PRONOUNCED AT SMALL LEVELS OF EXTERNAL STRESS.

UNCLASSIFIED

Acc. Nr.

A/0048485

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:

4R0070

104778n Selective etching on dislocations in metals (bismuth). Popkova, E. G.; Pedyoditsky, A. A. (Mosk. Gos. Univ. im. Lomonosova, Moscow, USSR). *Kristallografiya* 1970, 15(1), 91-7 (Russ). A no. of etching compns. were studied as well as the mechanism of selective etching on dislocations in

metals with a pos. normal potential. Bi was the object of the investigation, and the etching process was done on [0001] planes, resulting from splitting single crystals cooled in liq. N. The following etchants could be used for Bi: HNO_3 , H_2SO_4 , H_3PO_4 , FeCl_3 , $(\text{NH}_4)_2\text{S}_2\text{O}_8$, $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$, $\text{K}_2\text{Cr}_2\text{O}_7$, AgNO_3 , $\text{Hg}(\text{NO}_3)_2$, $\text{Cu}(\text{NO}_3)_2$, and CuSO_4 solns. Solvents play an important role in this process and should be 1 polar compds. of the alc. type: e.g., EtOH, MeOH, BuOH, HOAc, or $\text{MeCHOHCO}_2\text{H}$. Because of the tendency of the Bi salt to hydrolyze, the use of aq. solns. is not recommended. The rate of metal etching depends on the type of solvent, and mutual quant. ratios of components exert a pos. effect on the clearness of the etch image. Increased concn. of the oxidizing component such as HNO_3 gives rise to the effect of surface polishing and disappearance of etch pits (holes). The rate of etching and the shape of etch figures can be controlled by adding corrosion inhibitors and surfactants, e.g. dibutylaniline hydrobromide.

J. Pabis-Machaj

REEL/FRAME
19800193

187c

USSR

UDC 535

PREDVODITELEV, A. S.

"On Certain Assumptions Associated With the Motion of a Wave Front in Non-homogeneous Media"

V sb. Fiz. i fiz.-khimiya zhidkostey (Physics and the Physical Chemistry of Liquids -- Collection of Works), No. 1, Moscow, Moscow University, 1972, pp 191-206 (from RZh-Fizika, No 10, Oct 72, Abstract No 10D785)

Translation: Certain basic problems in the phenomenon of the Rayleigh scattering of light were analyzed on the basis of Hugoniot-Hadamard compatibility conditions. The notion of a wave front for an arbitrary wave process is introduced in general form. It is shown that when the amplitude of the front begins to be a function of the coordinates and a ray of the front begins to change its direction, we are dealing with a particular case of the motion of a wave front corresponding to the scattering of light in an optically nonhomogeneous medium. The basic laws governing the motion of the wave front are briefly discussed. 5 ref. V. S. Z.

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UDC 53(09)

USSR

PREDVODITELEV, A. S., SPASSKIY, B. I.

"The Development of Physics in Russia. (An Outline). Vol. 1. From the beginning of the XVIII Century to the Great October Socialist Revolution"

Razvitiye fiziki v Rossii. (Ocherki). T. 1. Ot nachala XVIII v. do Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii (cf. English above), Moscow, "Prosveshcheniye", 1970, 415 pp, ill., 2 r. 30 k. (from RZh-Fizika, No 1, Jan 71, Abstract No 1A3K)

Translation: The first volume covers the history of the development of physics in Russia from the beginning of the XVIII century to the Great October Socialist Revolution. The articles of the first volume were written on the basis of recent studies and the collection of much previously unknown material and tell of the life and activity of the eminent physicists of this country who had various destinies and interests and different styles and methods of scientific work; the essence and meaning of discoveries and inventions made by them are examined against the background of world-wide physical science. A courageous creative approach to the solution of problems facing them, their deep desire to relate the

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USSR

PREDVODITELEV, A. S., SPASSKIY, B. I., Razvitiye fiziki v Rosii. (Ocherki).
T. 1. Ot nachala XVIII v. do Velikoy Oktyabr'skoy sotsialisticheskoy revolyut-
sii, Moscow, "Prosveshcheniye", 1970, 415 pp, ill., 2 r. 30 k.

achievements of physical science to technical progress and the enlightenment of the people, and a firm materialistic tradition in the understanding of nature are common to them all. The first volume has four sections. The first section covers the leading role of the Petersburg Academy of Science and Moscow University. The second section contains outlines in which are discussed the role of Russian universities in the first half of the XIX century in the development of physical science and in the training of scientific and teaching cadre. The third section publishes notes on the life and activity of eminent Russian physicists of the second half of the XIX century: A. G. Stoletov, D. I. Mendeleyev, N. A. Umov, P. N. Lebedev, A. S. Popov, A. A. Eykhenval'da, N. N. Pirogov, and others. The fourth section discusses areas in the physical sciences that were developed in the second half of the XIX century.

2/2

USSR

UDC 547.26'118

URVANTSEVA, G. A., PREDVODITELEV, D. A., and NIFANT'YEV, E. Ye., Moscow
Pedagogical Institute imeni V. I. Lenin

"Ethyleneamidophosphites of the Derivatives of Glycerine. V. Synthesis
of N-Methylaminoethylglycerophosphates and Phosphonates"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 10, Oct 73, pp 2187-2189

Abstract: Hydrolysis of N-methylethyleneamidophosphate and N-methyl-
ethyleneamidophosphite of 1,2-isopropylideneglycerine has been investi-
gated. It has been shown that glycerine N-methylcolaminophosphates can
be isolated in form of complexes with cadmium chloride. Chloral adds
energetically to N-methylaminoethylphosphate of 1,2-isopropylideneglycerine
forming a derivative of phosphonic acid.

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